

Carnegie Mellon University



OPEN: Instructional Design and Learning Effectiveness

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 **OpenLearningInitiative**

OPEN Consortia will Support ALL DOL TAACCCT Grantees



OPEN
Open Professionals
Education Network



**(1) Sign up for free support @
Open4us.org**

(2) Save the date!
OPEN Kick-off Conference will be:
May 30-31, 2012

(3) Tell your project about OPEN!

What is CMU's Open Learning Initiative?

Scientifically-based
online learning
environments
designed to
improve both
quality and
productivity in
higher education



 OpenLearningInitiative

Open Learning Initiative

Produce courses and course materials which *enact* instruction and support instructors

Provide open access to these courses and materials

Develop communities of use, research and development that enable evaluation and continuous improvement

Why a learner-centered approach?

Learning results from what the student does and thinks and only from what the student does and thinks. The teacher can advance learning only by influencing what the student does to learn.

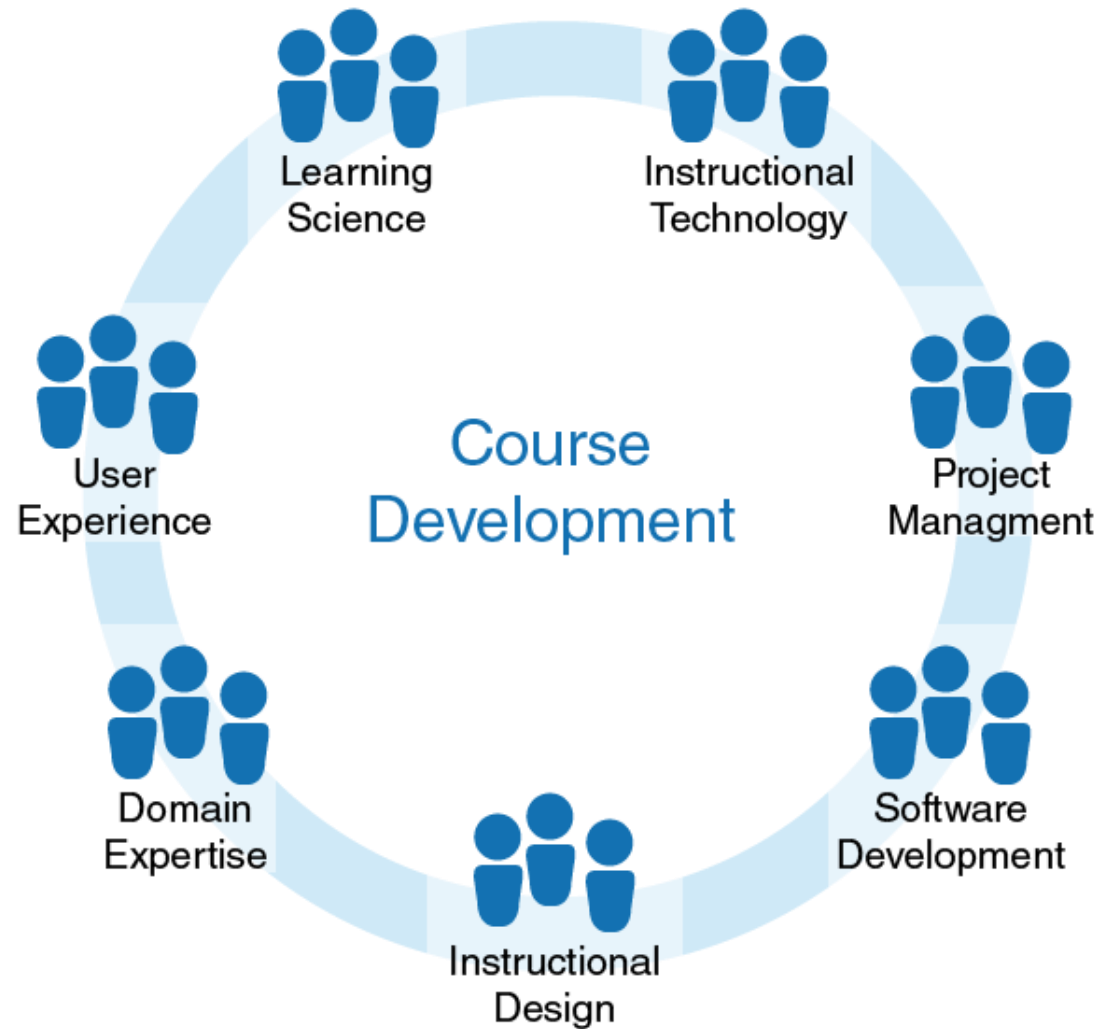
Herbert Simon, 2001

It's not teaching that causes learning. *Attempts* by the learner to *perform* cause learning, dependent upon the *quality of feedback and opportunities to use it*.

Grant Wiggins

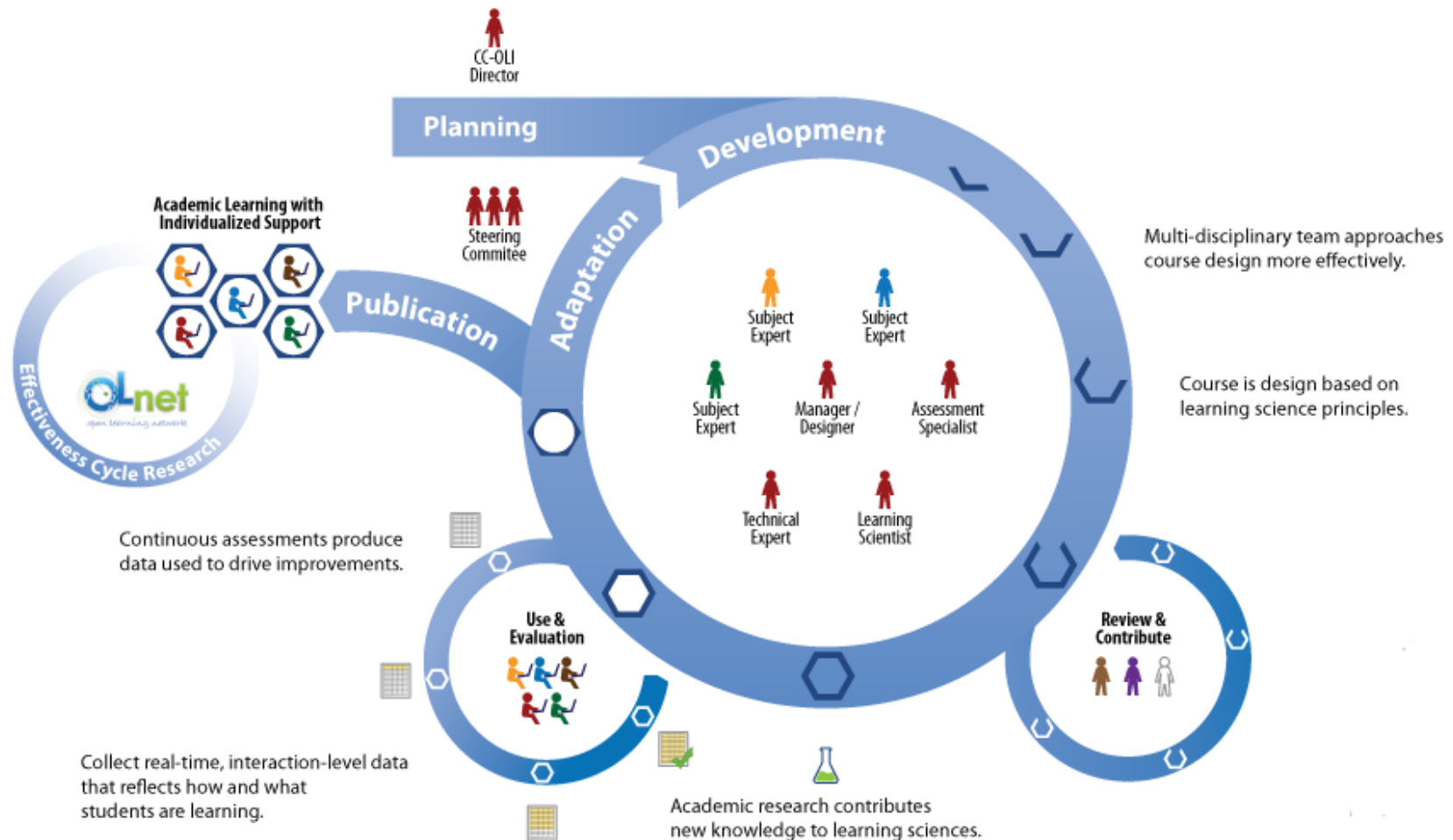
President, Center of Learning Assessment

Community Based Approach

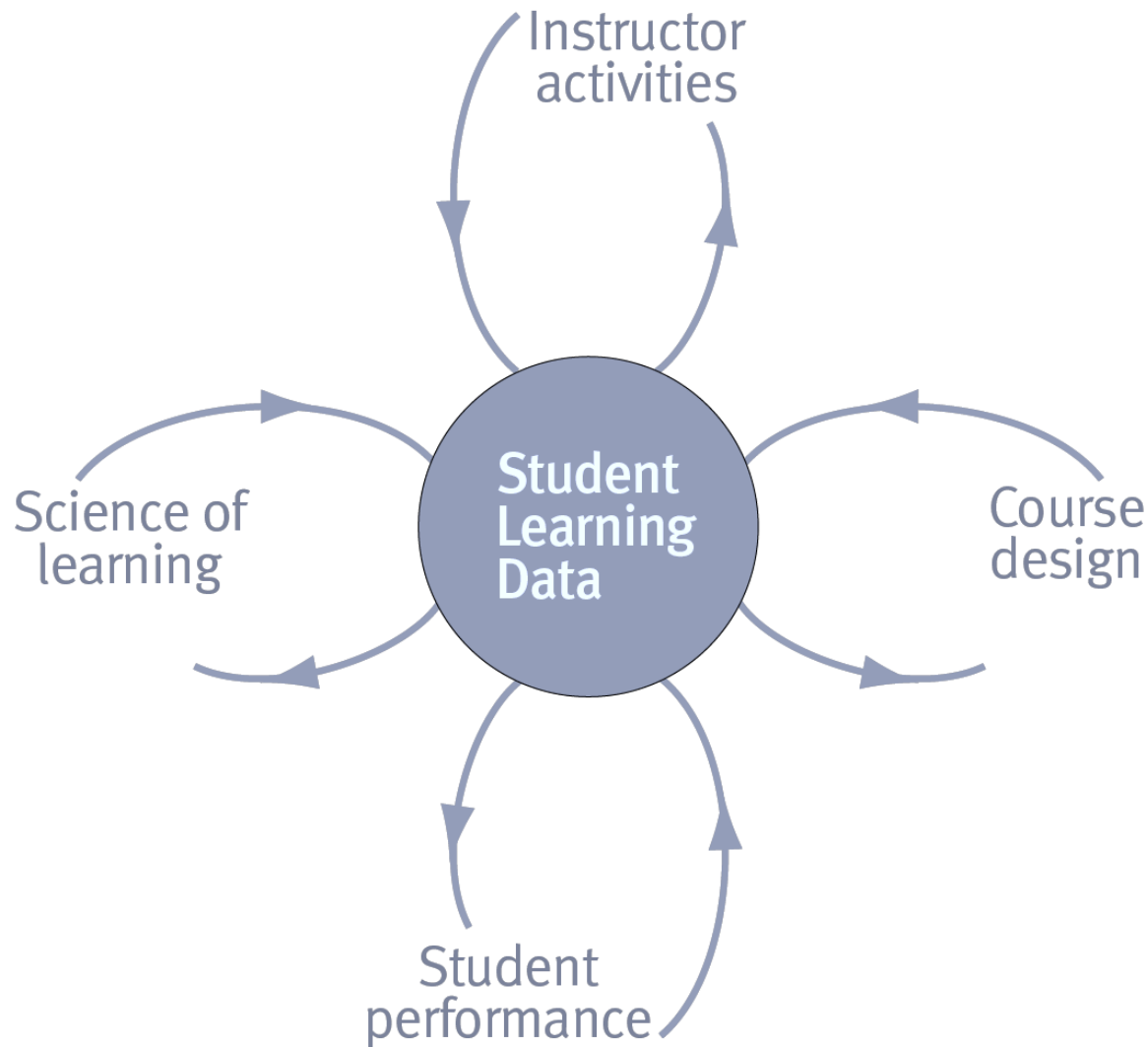


Community College Opening Learning Initiative

A consortium of community colleges enacting a large scale, systems-change process to increase efficiency in the way instruction is developed, delivered, evaluated, and continuously improved.



Powerful Feedback Loops



Learning Dashboard



Ensuring Success Online

- Develop, use, and evaluate learning environments **collaboratively**. (teams of content experts and novices, learning scientists, HCI specialists, software engineers)
- **Feedback** loops for adaptive learning and continuous improvement
- Apply **learning science** research and **scientific method** to course development, implementation and evaluation

What Difference Does it Make?

Accelerated Learning

With the OLI Statistics course, the Accelerated students:

- Completed the course in **half as many weeks** with **half as many class meetings per week**
- Spent the **same amount of time in a given week** on coursework outside of class as traditional students
- **Gained much more** on the CAOS test than did the traditional controls
- **Retained their knowledge** and maintained an advantage over traditional students in retention tests given 1+ semesters later.

M. Lovett, O. Meyer, & C. Thille, C., “The Open Learning Initiative: Measuring the effectiveness of the OLI statistics course in accelerating student learning,” *Journal of Interactive Media in Education* (2008).

Other Class Results

- Large Public University: OLI Online vs. traditional. OLI 99% completion rate vs 41% completion rate traditional.
- Community College accelerated learning study in Logic: An instructor with minimal experience in logic. Students obtained high levels of performance on more advanced content (~33%) not covered in traditional instruction.
- OLI stoichiometry course: The number of interactions with the virtual lab outweighed ALL other factors including gender and SAT score as the predictor of positive learning outcome.

Strengthen Online and Technology-Enabled Learning

“TAACCCT will support institutions that are committed to using data to continuously assess the effectiveness of their strategies in order to improve their program... and build evidence about effective practice..”



OLI Supported Development

- **Best Practices (all projects):** Apply learning science research and scientific method to OER development, implementation and evaluation.
- **Platform+ (25 projects):** Use rich data gathered from student interactions to drive multiple feedback loops for continuous improvement.
- **Co-development (3 teams):** Develop OER collaboratively: Teams of TAACCCT grantees with OLI learning scientists, human computer interaction experts & software engineers.



Why OPEN Services?

Improve quality and increase effectiveness

Satisfy your TAACCT deliverables

No cost to you, funded by Gates Foundation

Best Practices

- Resources for effective course design and evaluation
- Pointers to current findings in learning science and how to apply them to your work
- Share in OLI's best practices and lessons learned
- Opportunities to engage with OLI, the OPEN team and other grantees

Learning Engineering

Applying theory and research to practice:

- Defining student centered learning outcomes
- Aligning practice with outcomes and assessment
- Leveraging technological affordances
- Multimedia design principles
- Writing good hints and feedback
- Strategies for data capture and evaluation

Also CC licensing, accessibility, and universal design

Platform+

Available to 25 projects:

- Project space and hosting
- Training and support
- Authoring tools
- Advanced Mini-Tutors, Assessments
- Data capture and reporting
- CC licensing and metadata
- Accessibility compliance
- UDL enhanced

Co-Development

OLI led development process: learning design, development, evaluation, and iterative improvement

Bring together projects working in same content areas committed to:

- Align on desired learning outcomes
- Collaborate and engage in shared process
- Take a scientific, research driven approach
- Incorporate outside expertise in project management, technology, learning science

Co-Development

Build learning environments which

- Target the mutual needs of participant projects
- Embed frequent opportunities for goal directed practice and targeted feedback
- Capture data and deliver timely feedback to the learner, instructor, and course development team
- Demonstrate effectiveness through research and evaluation
- Increase adoption through goal alignment
- Satisfy your TAACCCT obligations for effectiveness evaluation

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“Improvement in Post Secondary Education will require converting teaching from a ‘solo sport’ to a community based research activity.”

—Herbert Simon